

31 a cooling member with a support surface arranged so as to face a first one of the flat sides of the solid-state body, said first flat side being thermally coupled to said support surface for the discharge of heat,

said first flat side of the solid-state body being coupled mechanically and thermally to the support surface by an adhesive layer produced from an adhesive material passing essentially invariant in volume from a liquid state into a solid, cross-linked state, and

the adhesive layer having an active adhesive layer area with a heat resistance of less than $10 \text{ K} \times \text{mm}^2/\text{W}$.

- 32 30. A laser amplifying system as defined in claim 29, wherein the heat resistance of the active adhesive layer area is less than $5 \text{ K} \times \text{mm}^2/\text{W}$.
31. A laser amplifying system as defined in claim 29, wherein the active adhesive layer area is at least that area of the adhesive layer bordering on a volume area of the solid-state body having a pumping power density of the pumping light radiation field of at least approximately 80% of the maximum value present in it.
32. A laser amplifying system as defined in claim 29, wherein the active adhesive layer area is at least that area of the adhesive layer bordering on the volume area of the solid-state body penetrated by the pumping light radiation field.
33. A laser amplifying system as defined in claim 29, wherein the active adhesive layer area is at least that area of the

adhesive layer bordering on the volume area of the solid-state body penetrated by at least two intersecting pumping light radiation fields.

34. A laser amplifying system as defined in claim 29, wherein the adhesive layer has a tensile strength of more than 1 N/mm².
35. A laser amplifying system as defined in claim 34, wherein the adhesive layer has a tensile strength of more than 5 N/mm².
36. A laser amplifying system as defined in claim 29, wherein the adhesive layer has a shearing strength of more than 5 N/mm².
37. A laser amplifying system as defined in claim 36, wherein the adhesive layer has a shearing strength of more than 25 N/mm².
38. A laser amplifying system as defined in claim 29, wherein the adhesive layer is essentially thermally invariant in shape in the solid, cross-linked state.
39. A laser amplifying system as defined in claim 29, wherein the adhesive is a two-component adhesive.
40. A laser amplifying system as defined in claim 29, wherein the adhesive passes from the liquid state into the solid,

cross-linked state without any transfer of substances.

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41. A laser amplifying system as defined in claim 29, wherein the adhesive is an adhesive hardening by way of a supply of energy by means of radiation.
42. A laser amplifying system as defined in claim 41, wherein the adhesive is hardened by way of radiation with light.
43. A laser amplifying system as defined in claim 42, wherein the adhesive is hardened by way of radiation with UV light.
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44. A laser amplifying system as defined in claim 29, wherein the adhesive has a viscosity of less than 1000 mPa x s in the non-cross-linked state.
45. A laser amplifying system as defined in claim 29, wherein the adhesive layer is free from filler material.
46. A laser amplifying system as defined in claim 29, wherein the adhesive layer has a filler material.
47. A laser amplifying system as defined in claim 46, wherein the filler material has nanoparticles.
48. A laser amplifying system as defined in claim 46, wherein the filler material has filler bodies with a size in the micrometer range.

49. A laser amplifying system as defined in claim 48, wherein the filler material has filler bodies consisting of one or more of the substances boron nitride, diamond, silver, copper and/or gold.
50. A laser amplifying system as defined in claim 29, wherein the adhesive layer area bordering on the active volume area has a thickness of less than 5 μm .
51. A laser amplifying system as defined in claim 50, wherein the adhesive layer area bordering on the active volume area has a thickness of less than 2 μm .
52. A laser amplifying system as defined in claim 46, wherein the adhesive layer area bordering on the active volume area has a thickness of less than 50 μm .
53. A laser amplifying system as defined in claim 29, wherein the adhesive layer is optically transparent.
54. A laser amplifying system as defined in claim 29, wherein the adhesive layer has an essentially constant thickness .
55. A laser amplifying system as defined in claim 29, wherein the adhesive layer has an increasing thickness in a radial direction in relation to a center of the active volume area starting from a central adhesive layer area bordering on said center.